

REPORT

UPON THE

REPTILES AND BATRACHIANS

COLLECTED DURING

THE YEARS OF 1875, 1876, AND 1877,

IN

CALIFORNIA, ARIZONA, AND NEVADA,

BY

DR. H. C. YARROW,

ACTING ASSISTANT SURGEON, U. S. A.,

AND

H. W. HENSHAW.



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REPORT UPON THE REPTILES AND BATRACHIANS COLLECTED DURING THE YEARS OF 1875, 1876, AND 1877, IN CALIFORNIA, ARIZONA, AND NEVADA, BY DR. H. C. YARROW, ACTING ASSISTANT SURGEON, U. S. A., AND H. W. HENSHAW.

UNITED STATES ENGINEER OFFICE,
GEOGRAPHICAL SURVEYS WEST OF THE 100TH MERIDIAN,
Washington, D. C., June 30, 1878.

SIR: The collection of Reptiles and Batrachians upon which the following report is based was made in California, Arizona, and Nevada during the years 1875, 1876, and 1877, and, while not embracing a large number of species, has seemed of sufficient value and interest to render a brief paper necessary, which it is hoped may prove a slight contribution to our herpetological knowledge. Although no new species are described, and more or less of the forms have been collected in previous years by the expedition, yet quite a number of those enumerated have been secured by the collectors of the different parties for the first time in the history of the survey.

It will be found that some few facts have been noted regarding certain species, their habits and geographical distribution, that are new at least to us, and may be to others; they are given for what they are worth. With much diffidence, and we trust with becoming respect, we have deemed it proper to differ in some particulars with the fathers of American herpetology, Holbrook, Baird, Girard, and Cope, and earnestly hope that we have been able to conclusively show our reasons therefor; if we have erred we can at least claim the merit of having written according to our conscientious convictions and after a thorough and careful consideration of the many specimens in the suite of reptiles in the National Museum.

In going over several of the genera, especially of Serpents, we have followed the example of Professor Cope, and seen fit to reduce the number of species, and we earnestly believe with him that if more attention were paid to examining certain forms showing aberrant tendencies, instead of constantly striving to establish new species, better results and more philosophical would be the consequence. From this statement it is not to be inferred for a moment that we are inclined to throw doubts upon the very excellent herpetological work of earlier authors; for it is to be remembered that, at the time when many of the species were described, for instance, by Baird and Girard, in many instances only single specimens were available for study; hence no comparisons could be made, and perhaps individual peculiarities were mistaken for constant traits. As collections have increased year by year under the fostering hand of the general government, opportunities for study have correspondingly advanced, and we are now in better condition to determine generic and specific differences.

As matters of special interest in this paper, attention is invited to the notes regarding the genera *Pityophis*, *Bascanium*, and *Eutaenia*, and with regard to *Sceloporus*, as also some facts in connection with the *Phrynosoma*, or "Horned Toads," so called. An item of interest is the occurrence, far to the eastward, of *Charina plumbea*, a curious serpent.

While it cannot be pretended that the synonymical lists are complete, it was intended that they should be so to the extent of the means at our disposal, and we believe all the more important references will be found therein contained.

A list of specimens follows each species, as well to indicate the exact locality whence obtained as to show by whom collected.

We are indebted to Prof. S. F. Baird, Prof. E. D. Cope, and to Mr. S. C. Brown of the Smithsonian Institution, for favors received while studying the collection, and to the assistants of the expedition who have contributed specimens to it.

Very respectfully, your obedient servants,

H. C. YARROW.
H. W. HENSHAW.

Lient. GEO. M. WHEELER,
Corps of Engineers, in charge.

ANURA.

BUFONIFORMIA.

BUFONIDÆ.

BUFO COPEI sp. nov. nobis.

Head subtriangular, broader than long; snout acuminated, protruding; head with well-marked groove, which extends to tip of snout; supraciliary ridges strongly pronounced and terminating posteriorly in a slight knob; orbit bordered posteriorly by a similar ridge; upper jaw slightly emarginated; parotids medium, elongated, twice as long as broad, perforated by numerous small pores, situated well back on the shoulders; not approximated to the tympanum, which is circular and large; limbs long and comparatively slender; palm rugose; a single well-developed tubercle; first, second, and fourth fingers about equal in length, the third longest; hind limbs rather longer than head and body together; tarsus and metatarsus with small and smooth tubercles; body above covered with small and somewhat roughened tubercles; under parts finely papillated; metatarsal shovel large.

Colors.—A broad, median, yellowish-white stripe passes from the snout to anus, on either side of which are stripes and spots of the same varied with black; sides also conspicuously striped or barred; under parts densely maculated with irregularly shaped blotches and spots of black upon a ground-color of yellowish-white; the head and upper jaw are also variously barred; limbs marked transversely with black.

Habitat.—Hudson's Bay; James Bay.

This is the most brightly colored species of the genus inhabiting our territory, and presents, by reason of the contrasted tints, a very marked appearance. This is apparent in the alcoholized specimens, and in life the colors must be still more striking. Slight comparison only is necessary to show its distinctness from any other of our species. From *columbiensis*, the only other species recognized from the same region, it is to be distinguished not only by its very different pattern of coloration, but also by the presence of the well-developed temporal ridges, these being slightly indicated or entirely wanting in that animal; added to this are the shape of the head, the shape and position of the parotids, the somewhat slenderer limbs, the fewer and different tubercles, &c.

The development of the supraciliary ridges seems to place the species near *lentiginosus*, from either of the five varieties of which it differs very decidedly.

A large number of specimens collected by Kennerly in the neighborhood of Hudson's Bay are in the Smithsonian collection. The extreme size attained by the species is probably represented, and there are many immature individuals. The largest specimens measure about three inches in length and five and one-half inches from tip of nose to end of outstretched hind leg. This extreme is much less than that attained by the *B. columbiensis* from the Columbia River region.

The occurrence of this highly colored Batrachian at a locality so far to the north as Hudson's Bay seems an apparent contradiction to the general law which is susceptible of such extensive application throughout the animal kingdom, under which the most brightly colored species of a family are of southern distribution and present marked contrasts to their more somberly tinted relatives of northern climes. In this instance the case is reversed, for all the other members of this family in the United States are uniformly dull-colored, and in no respect approach the bright tints of the present species.

One other equally marked exception to this law which we recall may be cited, the *Carabus vietnghorii*, a most highly colored beetle inhabiting the region of Hudson's Bay.

It is possible that in some comparatively restricted area in this high latitude not yet determined, there exist some climatic peculiarities which are the direct cause of this brilliancy of color in the two instances cited, and which may be of wider applicability than at present suspected; other species affected in a similar way may remain to be detected.

In this connection may be mentioned a similar tendency shown in several species of birds, which are mainly restricted to the Hudson's Bay region; thus the *Aegithus linaria*, the *Bubo virginianus*, and the *Falco sacer* are each represented here by a darker, more richly colored race. These species doubtless inhabit such portions of this region only as are heavily timbered, and as a matter of course subject to considerable moisture. The changes brought about indicate conditions similar to those obtaining in the densely timbered coast regions of the Northwest.

Doubtless much of the brightness of tint seen in our Batrachian is the result of the extreme heat which prevails here during the very short summer, added to the effects of the local moisture.*

* To this cause Lieutenant Carpenter attributes the bright colors of the *Carabus*. See Annual Report of this Survey, 1875, p. 302.

We take great pleasure in dedicating this species to Prof. E. D. Cope, whose labors have done so much toward advancing the science of herpetology.

BUFO HALOPHILUS Baird.

Bufo halophila Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1853, 301.—Bd. & Gd., U. S. and Mex. Bound. Surv. ii. Rept. 1859, 26, pl. 41, figs. 7-12.

Bufo halophilus Cope, Check-List N. A. Batr. and Rept. 1875, 27.

This appears to be the common toad of much of the west coast. In general appearance it much resembles the *B. columbiensis* of the Columbia River region and Montana, from which, however, it seems to be perfectly distinct. The numerous warty excrescences on the upper parts of the latter are large and rough, and have much the same appearance and structure as the parotids. The second forefinger is considerably longer than the inner, just the reverse of which is true of *halophilus*, in which also the warts are smaller and smoother as well as less numerous.

Most of our specimens were obtained in midsummer from pools of water, and are nearly all very young. As is usual in this family, they are much spotted below, instead of being nearly or quite uncolored, as are the adults. This species was found to be very numerous about Lake Tahoe, and also near Virginia City, Nev., as well as along the California coast. Its range is thus extended across the mountains and east of the Sierra Nevada.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8691	Santa Barbara, Cal.	1875	Dr. H. C. Yarrow...	1
8693	Lake Tahoe	1875	H. W. Henshaw...	1
8695	Virginia City, Nev.	1875	do	1
8698	Fort Tejon, Cal.	1875	do	1
8678	Santa Barbara, Cal.	1875	do	30
8699	do	1875	Dr. H. C. Yarrow	3
8696	Lake Tahoe	1878	H. W. Henshaw...	7
8681	do	1876	do	27

ARCIFERA.

HYLIDÆ.

HYLA.

HYLA REGILLA Baird.

Hyla regilla Bd. & Gd., Proc. Acad. Nat. Sci. Phila. vi, 1852, 174; 1853, 301.—Gd., Herp. U. S. Expl. Exped. 1858, 60.—Coop. & Suckl., Nat. Hist. Wash. Terr. 1859, 304.—Bd., P. R. R. Rep. x, 1859, 12, pl. 28, fig. 3.

Hyla scapularis Hallow., Proc. Acad. Nat. Sci. Phila. vi, 1852, 183.—Hallow., P. R. R. Rep. vol. x, 1859, 21.

A large suite of specimens of this species was secured in California, where it appears to be the prevailing form. In June, vast numbers of the young, in all stages, from the tadpole to the fully developed *Hyla*, were found in a stagnant pool upon Santa Cruz Island. At this season, they appear, young and old, to spend most of the time in the water. The variations in color to be observed here were quite remarkable, specimens exhibiting all the shades of green and brown to black, no two in fact appearing exactly comparable. Immersion in alcohol soon destroys the tints and they become more uniform. The exact configuration of markings varies also very much.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8682	Lake Tahoe	1876	H. W. Henshaw...	24
8680	Santa Barbara, Cal.	1875	do	6
8686	Santa Cruz Island, Cal.	1875	do	40
8688	Santa Barbara, Cal.	1875	do	25
8692	Lake Tahoe	1876	do	1
8701	Santa Barbara, Cal.	1875	do	7
8702	Mount Whitney, Cal.	1875	do	1
8703	Fort Tejon, Cal.	1875	do	4
8704	Los Angeles, Cal.	1875	William Somers	1
8697	Fort Tejon, Cal.	1875	H. W. Henshaw	1
9499	Lake Tahoe	1876	do	7
9500	Southern California	1875	do	1

HYLA ARENICOLOR Cope.

Hyla affinis Bd., Proc. Acad. Nat. Sci. Phila. 1854, 61 (not of Spix); *id.*, U. S. and Mex. Bound. Surv. Rep. ii, 1859, 29, pl. 28, figs. 4-7.
Hyla arenicolor Cope, Journ. Acad. Nat. Sci. Phila. 1866, 84; *id.*, Proc. Acad. Nat. Sci. Phila. 301; *id.*, Check-List N. A. Batrach. and Rept. 1875, 31.—Yarrow, vol. v, Zool. U. S. Geog. Surv. W. 100th M. 1875, 524.—Coues, *ib.* p. 630.

Apparently rare, as but a single specimen was secured.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8694	Southern California	1875	H. W. Henshaw.....	2

SCAPHIOPIDÆ.

SPEA.

SPEA STAGNALIS Cope.

Spea stagnalis Cope, *apud* Yarrow, vol. v, Zool. U. S. Geog. Surv. W. 100th M. 1875, 525.

Described by Professor Cope, as above cited, from New Mexico. A single *Spea*, secured at Santa Barbara in 1875, has been identified by Professor Cope as of this species, thus extending its range widely.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8699	Santa Barbara, Cal	1875	Dr. H. C. Yarrow.....	1

RANIFORMIA.

RANIDÆ.

RANA.

RANA TEMPORARIA AURORA (Bd.) Cope.

a. TEMPORARIA.

Rana temporaria Linn., Syst. Nat. ed. 10, p. 213, No. 13.—Shaw, Gen. Zool. vol. 3, p. 97, pl. 29.—Latr., Hist. Rep. t. 2, 150.—Daud., Hist. Rain. Gren. Crap. 16, pl. 15.—Cuv., Règne Anim. 2^e éd. 96; t. 2, 105; et auctor.

b. AURORA.

Rana aurora Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 174.—Gd., Herp. U. S. Expl. Exped. 1858, 18, pl. 2, figs. 1-6.—Cope, Check-List N. A. Batrach. and Rept. 1875, 32.

Abundant in California.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8676	Santa Barbara, Cal	1875	H. W. Henshaw.....	1
8689	do	1875	do	1
8700	Fort Tejon, Cal	1875	do	3

RANA PRETIOSA Bd.

Rana pretiosa Bd. & Gd., Proc. Acad. Nat. Sci. Phila. vi, 1853, 378.—Gd., Herp. U. S. Expl. Exped. vol. 20, 1858, pl. ii, figs. 13-18.—Cope, Check-List N. A. Batrach. and Rept. 1875, 32.

We assign provisionally a number of specimens to this form, their resemblance being closer than to any other with which we are acquainted. Our specimens are very dark in color (coming from a black, muddy, marshy pool in the mountains), and are of a yellowish-white on the under surface of the abdomen and legs.

List of specimens.

No.	Locality.	Date.	Collector.	No. of speces.
8683	Southern California	1875	H. W. Henshaw	15
8684	..... do	1875	..... do	4
8685	Lake Tahoe	1876	..... do	13
8687	Kern River, Cal.	1875	..... do	6
8705	Lake Tahoe	1876	..... do	1

OPHIDIA.

SOLENOGLYPHA.

CROTALIDÆ.

CROTALUS PYRRHUS Cope.

Caudisoma pyrrha Cope, Proc. Acad. Nat. Sci. Phila. 1866, 308, 310.—Copes, vol. v, Zoology, U. S. Geog. Surv. W. 100th Meridian, 1875, 535, pl. 22.

Crotalus pyrrhus Cope, Check-List N. A. Rept. and Batrach. 1875, 33.—Streets, Bull. Nat. Mus. No. 7, 1877, pp. 39, 41.

Since 1866, when this species was first described by Professor Cope from a skin collected near Fort Whipple, Ariz., by Dr. E. Coues, U. S. A., two additional specimens have been secured, one by Dr. Thomas H. Streets, U. S. N., on Angel Island, Gulf of California; the other, a head only, from the Mojave Desert, Arizona, by Dr. O. Loew, late of this expedition. The specimen collected by Dr. Streets resembles greatly the colored plate in vol. v, Zoology, of this expedition, and is $3\frac{1}{2}$ feet long. This gentleman informs the authors that on Angel Island the species is very numerous, but, being unrecognized at the time, only a single individual was secured.

Dr. Loew's specimen, No. 8666 (Nat. Mus. Reserve Series), is a small head, which corresponds entirely to the description given by Professor Cope. The colors, however, are faded and not distinctive. The habitat of this well-marked species is given as Central Arizona. It is probable, however, that the species is found generally dispersed along our southwestern border, and that it is by no means as rare as the few specimens secured would seem to indicate.

List of specimens.

No.	Locality.	Date.	Collector.	No. of speces.
8669	Mojave Desert, Arizona	1875	Dr. O. Loew	1

CROTALUS CONFLUENTUS Say.

Crotalus confluentus Say, Long's Exp. Rocky Mts. ii, 1823, 48.—Baird & Girard, Cat. N. A. Rept. pt. 1, Serp., 1853, 8.—Bd. & Gd., Expl. Red River, La., 1853, 217, pl. 1.—Duméril & Bibron, Erp. Gen. t. vii, 1854, 1475.—Bd., P. R. R. Rep. x, 1859, 40; id., U. S. and Mex. Bound. Surv. ii, Rept. 1859, 14.—Cope & Suckl., Nat. Hist. Wash. Terr. 1869, 295.—Cope, Check-List N. A. Rept. and Batrach. 1875, 33.—Yarrow, vol. v, Zoology U. S. Geog. Surv. W. 100th Meridian, 530.—Copes & Yarrow, Bull. U. S. Geol. Surv. vol. iv, No. 1, 262.

Crotalus confluentis (sic) Harlan, Med. and Phys. Res. 1855, p. 135.

Caudisoma confluenta Cope, App. Mitchell's Res. 1861, 122; id., Proc. Acad. Nat. Sci. Phila. 1866, 307.—Allen, Proc. Bost. Soc. Nat. Hist. xvii, 1874, 307, 309.—Copes, vol. v, Zoology, U. S. Geog. Surv. W. 100th Meridian, 604.

Crotalus lecontei Hallow., Proc. Acad. Nat. Sci. Phila. vi, 1851, 180; *id.*, Sitgreaves's Exp. Zuñi and Col. Riv. 1853, 139; *id.*, P. R. R. Rep. x, 1859, 18, pl. 3.—Heerm., P. R. R. Rep. x, 1859, 25.
Caudisona lecontei Cope, App. Mitchell's Res. 1861, 121.—Hayd., Trans. Am. Phil. Soc. xii, 1862, 177.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 307.
Caudisona confluenta var. *lecontei* Cope, Proc. Acad. Nat. Sci. Phila. 1866, 307.
Crotalus cinereus (*sic*) Lec. *apud* Hallow., Sitgreaves's Exp. Zuñi and Col. Riv. 1853, 140.

An examination of specimens collected by the expedition shows clearly that but little dependence can be placed upon coloration as a specific character for this species, age as well as difference of locality being added to variations of a purely individual character to complicate the matter. The bright bands on the head differ greatly in different individuals as to distinctness of definition and depth of tint. The dorsal blotches also vary much, and are always more distinct in young individuals. In one specimen, No. 8598, Kern River, California, are seen tolerably large dorsal blotches, dentate posteriorly, and with, for the most part, quadruple serrations anteriorly. The spots are brownish-black on edges, the centers a light chestnut. Beneath each blotch on either side is a double series of deep chestnut spots, the last reaching the edges of the gastriges; toward the tail these spots coalesce and form irregular bands reaching to edge of ventral scales, with a series of spots between them. Each ventral scale is maculated posteriorly, the color fading toward head; 5 irregular blackish half bands on tail from anus to rattle. Superior labials 16 on right side, 15 on left; 27 rows of scales.

In larger and older specimens the dorsal blotches are lighter in color, the margins not so well defined, and the lateral rows of spots are very incomplete and almost obsolete. In one specimen, No. 9519, there are 18 superior labials on both sides, with 25 rows of scales; in another from same locality, No. 9519, there are 15 superior labials on left side, 16 on right, 25 rows of scales. In one the orbit is separated from the superior labials by 5 scales, in another by 4. Remarks on similar discrepancies between individuals of this species, often from the same locality, might be multiplied almost indefinitely.

The large island in Pyramid Lake, Nevada, is noted for the vast number of these reptiles residing there, and during the warm months they are so numerous that it is absolutely dangerous to walk about those parts of the island where they are colonized without exercising the greatest caution. In New Mexico, also, this species has been found to be very numerous by the expedition. In 1876, Lieut. C. M. Morrison encountered a colony of rattlesnakes, presumably of this species, under circumstances of interest, as giving us a clew to certain of their habits. The locality was a hill, appropriately named Rattlesnake Hill, in the southern part of the Territory. He places the number of rattlers seen during a day spent in occupying the summit as a topographical station as from 300 to 500, no fewer than 79 of the reptiles being killed in a little over an hour by the party of three. Toward sunset numbers were observed making their way in toward the rocks from the south, where perhaps they had been in search of food. Or it may be that the place was used by them for winterquarters, and those noticed on their way in were *en route* to join the company prior to the winter hibernation. This latter assumption is favored by the late date, October 5.* Mr. Morrison informs us that eggs were extruded from the bodies of several of the females as they were crushed with stones, and that by this means he was able to identify the sex and to note a very great discrepancy between the shape of the bodies of the females and males, those of the former being very much flattened. A statement of a similar colony is to be found in Kendall's Santa Fé Expedition, vol. 1, p. 160.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8598	Kern River, California	1875	H. W. Henshaw	1
9519	Pyramid Lake, Nevada	1877	...do	2

ASINEA.

COLUBRIDÆ.

OPHIBOLUS.

OPHIBOLUS GETULUS BOYLII (Linn.) Baird & Girard.

Ophibolus boylii Baird & Girard, Cat. N. A. Rept. pt. i. Serp., 1853, 82.—Bd., P. R. R. Rep. x, 1859, 2; *id.*, U. S. and Mex. Bound. Surv. ii, Rept., 1859, 20.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 315.
Lampropeltis boylii Cope, Proc. Acad. Nat. Sci. Phila. 1860, 255.

* This is a noteworthy fact, as midsummer has usually been supposed to be the reproductive season of these serpents.

Coronella balteata Hallow., Proc. Acad. Nat. Sci. Phila. 1853, 236; *id.*, P. R. R. Rep. x, 1859, 14.

Ophibolus getulus subspecies *boylii* Cope, Check-List N. A. Rept. and Batrach. 1875, 37.—Yarrow, vol. v. Zool., U. S. Geog. Surv. W. 100th meridian, 1875, 538.

Ophibolus getulus boylii Coues & Yarrow, Bull. U. S. Geolog. Surv. Terr. 1878, 283.

Ophibolus conjunctus Cope, Proc. Acad. Nat. Sci. Phila. 1861, 301.

Ophibolus getulus subspecies *conjunctus* Cope, Check-List N. A. Rept. and Bat. 1875, 37.

In specimen No. 8577, from Santa Barbara, Cal., the number of broad, white, transverse bands is 34; Baird and Girard state them to be 37. These bands on the top of the dorsum occupy $1\frac{1}{2}$ or 2 entire scales, gradually widening to 3 or $3\frac{1}{2}$ as they reach the ventrals. In young specimens the colors are very dark, and in some there are two small red spots between the occipital plates. In older and living specimens the dark sides and belly are of a lustrous greenish-black bronze, the white bands of a beautiful ivory-white.

Habitat.—Pacific Sonoran regions.

A careful comparison has been made between *O. getulus boylii* and *O. getulus conjunctus*, and while we consider the latter a well-marked variety of *boylii* we cannot admit the very slight characters brought forward by Professor Cope in his very meager notice of *conjunctus* to be distinctive of a separate race. Even admitting the fact that the margins of the scales in the white cross-bands are black-bordered, which is the principal, indeed the only, character given by Professor Cope as distinguishing this form, we consider this to be quite insufficient. As a matter of fact, specimens from Cape Saint Lucas, the habitat of this supposed variety, show considerable variation in this respect, and in some the dark margins are so slight that they may properly be referred to *boylii*. Specimens of the latter from typical localities also occasionally have the white scales margined slightly with black, which color is often found at their bases.

List of specimens.

No.	Locality.	Date.	Collector.	No. of spcs.
8577	Santa Barbara, California	1875	L. Shumacher.....	2

PITYOPHIS.

PITYOPHIS SAYI BELLONA (Baird & Girard) Cope.

a. SAYI.

Coluber melanoleucus var. *sayi* Harlan, Journ. Acad. Nat. Sci. Phila. v, 1827, 360; *id.*, Med. and Phys. Res. 1835, 123.

Coluber sayi Schl., Ess. Physiogn. Serp. 1837, 157. (Not *Coronella sayi* of Holbrook, or *Coluber sayi* of DeKay, which is *Ophibolus*.)

Pituophis sayi Bd. & Gir., App. Cat. N. A. Rept. 1853, 152 (in text under *Coluber sayi*, p. 151).—Keun. apud Coop. & Suckl., Nat. Hist. Wash. Terr. 1860, 300, pl. 22.—Hayd., Trans. Amer. Phil. Soc. xii, 1862, 177.

b. BELLONA.

Churchillia bellona Bd. & Gir., Stansbury's Rep. Great Salt Lake 1852, 350.

Pituophis bellona Bd. & Gir., Cat. N. Am. Rept. 1853, 66, 157.—Günther apud Gray, Cat. Col. Snakes, 1858, 87.

Pituophis bellona Kenn. apud Bd., P. R. R. Rep. x, 1859, Williamson's Route, Reptiles, 42.—Kenn. apud Bd., U. S. Mex. B. Surv. ii, pt. ii, 1859, Reptiles, 18.—Bd., U. S. P. R. R. Rep. x, 1859, Beckwith's Route, Reptiles, 19.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 305.—Allen, Proc. Boston Nat. Hist. xvii, 1874, 69.

Pituophis sayi var. *bellona* Cope, Check-List Bat. and Rep. N. A. 1875, 39.—Streets, Bull. U. S. Nat. Mus. No. 7, 1877, 40.

Pituophis affinis Hallow., Proc. Acad. Nat. Sci. Phila. vi, 1852, 181.—Hallow., Sitgr. Rep. Expl. Zuñi and Colorado R. 1853, 130, 146.

Pituophis sayi subsp. *bellona* Yarrow, vol. v. Zoology, U. S. Geog. Surv. W. 100th M. 1875, 540.

Pituophis sayi subsp. *bellona* Coues, vol. v. Zoology, U. S. Geog. Surv. W. 100th M. 617.—Coues & Yarrow, Bull. U. S. Geol. Surv. Terr. 1878, 282.

Pituophis mexicanus Dunn. & Bib., Erp. Gén. vii, 1854, 236.—Günther apud Gray, Cat. Col. Snakes, 1858, 87.

Pituophis sayi subsp. *mexicanus* Cope, Check-List N. A. Batr. and Rept. 1875, 39.—Yarrow, vol. v. Zoology, U. S. Geog. Surv. W. 100th M. 539.

Coluber catenifer Blainv., Nouv. Ann. Mus. Hist. Nat. iii, 1834, pl. xxvi, figs. 2, 2a, 2b.

Pituophis catenifer Bd. & Gd., Cat. N. A. Batr. and Rept. 1853, 69.—Günther apud Gray, Cat. Col. Snakes, 1858, 87.—Gd., U. S. Expl. Exp. 1858, 135.

Pituophis catenifer Cope, Check-List N. A. Batr. and Rept. 1875, 39.

Pituophis wilkesii Bd. & Gd., Cat. N. A. Rept. i, 1853, 71.—Gd., U. S. Expl. Exped. Herp. 1858, 137, pl. ix, figs. 1, 7.—Coop. & Suckl., Nat. Hist. Wash. Terr. 1859, 300.

A thorough examination of the series of specimens each of *P. sayi bellona*, *mexicanus*, and *catenifer* leaves no doubt in our minds of the propriety of uniting these three as one form under Baird & Girard's name of *bellona*, thus leaving but two varieties, the one

(*sayi*) inhabiting the Eastern region, the other (*bellona*) occupying the West generally. The characters given as distinguishing *catenifer* and *mexicanus* from the latter, of which they are supposed to be Southern varieties, appear to us too slight to warrant their separation, and to come quite within the range of individual variation. The scale-formula for the head varies greatly in this serpent (*bellona*), the upper labials in individuals of the same so-called species or varieties presenting a difference in number which has been given as indicating one or the other of these forms. The dorsal scales vary similarly in number, and no dependence, as a diagnostic feature, can be placed upon the number of carinated or smooth scales. Starting with the idea that each of these forms was peculiar to a more or less restricted region, we find individuals from the same locality presenting characters belonging to the three. Some specimens referable to *catenifer* as regards coloration if casually examined are really, taking all the characters into account, nearest to *bellona*. It may be stated that Baird and Girard mention as one of the specific points of *P. catenifer* that the four outer rows of dorsal scales are smooth. The type-specimen was from San Francisco, and as examined by us presents seven rows of smooth scales, the upper labials on one side being nine, on the other eight. It is to be noticed, however, that the number of smooth scales varies in different portions of the body, a fact apparently not recognized by these authors, the number of carinated scales decreasing toward the tail. Thus in this type it is true that near the tail there are but four rows of smooth scales, but toward the upper part of the body, near the neck, the number increases to seven or eight. This statement applies equally to the other two forms.

This beautiful and aberrant form was found to be tolerably common in California and Nevada, but none were seen approaching the great size (six feet two inches) of the specimens secured in Colorado in 1874. The Californians know this serpent as the Gopher or Bull Snake, and it is said to do good service in the destruction of their great pest, the Ground Squirrel, *Spermophilus beecheyi*.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8592	Santa Barbara, Cal.	1875	H. W. Henshaw	1
8582	do	1875	do	1
8590	Kernville, Cal.	1875	do	1
8670	do	1875	Dr. H. C. Yarrow	1
8591	Mojave Desert, Ariz.	1875	Dr. O. Loew	1
8594	Southern California	1875	H. W. Henshaw	1
8593	Santa Barbara, Cal.	1875	Dr. H. C. Yarrow	1
9521	Hovey Lake, Cal. (east slope)	1877	H. W. Henshaw	1

BASCANIUM.

BASCANIUM CONSTRICTOR FLAVVENTRIS (L.) Cope.

a. CONSTRICTOR.

Coluber constrictor Linn., Syst. Nat. i. 1766, 385.—Gm., Linn. Syst. Nat. ed. xiii. i. iii. 1788, 1109.—Shaw, Gen. Zoology, 464.—Merr., Tent. 1820, 108.—Latrelle, Hist. Nat. Rept. 1825, iv. 178.—Daudin, ibid. vi. 402.—Lac., Hist. Nat. Serps. t. ii. 309.—Fitzinger, Neu. Class. der Rept. 1826, 57.—Hart., Journ. Acad. Nat. Sci. Phila. v. 1827, 348; Med. and Phys. Res. 1835, 112.—Schl., Ess. Phys. Serp. Deser. 1837, 133, pl. iv, figs. 3, 4.—Storer, Rep. Rept. Mass. 1839, 225.—Holbr., N. A. Herp. iii. 1842, 55, pl. xi.—Thomps., Hist. of Vermont, 1842, 117.—DeKay, New York Fauna, Rept., 1842, 35, pl. x, fig. 20.

Natrix constrictor Merr., Syst. der Amphib. 1820, 108.

Hieropis constrictor Bon., Fn. Ital. ii. 1841.

Coryphodon constrictor Dum. & Bib., Erp. Gén. vii-i, 1854, 183.—Günther apud Gray, Cat. Coll. Snakes, 1858, 109.

Vipera nigra Catesb., Nat. Hist. Carolin. ii. 1743, 48, tab. xlvi.

Black snake, Kalm, Reise N. A. ii. 1764, 202.—Penn., Arct. Zool. Suppl. ii, 1792, 92.

Bascanion foxi Bd. & Gd., Cat. N. A. Rept. 1853, 96.

? *Bascanion fremontii* Bd. & Gd., Cat. N. A. Rept. 1853, 95.

b. FLAVVENTRIS.

Coluber flaviventris Say, Long's Exp. Rocky Mts. ii. 1823, 185.

Bascanion flaviventris Bd. & Gd., Cat. N. A. Rept. 1853, 96.—Bd., U. S. & Mex. Bound. Surv. ii, Rept. 1858, 20.

Coryphodon flaviventris Hallow., Proc. Acad. Nat. Sci. Phila. 1856, 241.

Bascanion reticulatum Bd. & Gd., Cat. N. A. Rept. 1853, 97.—Gd., Herp. U. S. Expl. Exp. 1858, 127, pl. viii, figs.

12, 19.—Cooper, P. R. R. Rept. xii, pt. ii, 1860, 301.

Bascanion constrictor subsp. *reticulatum* Cope, Check-List N. A. Batrach. and Rept. 1875, 40.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 541.

A critical study of the very large series of *Bascanion constrictor* in the Smithsonian reveals a very extensive geographical range for this species. Except in the single

particular of color, a point to be adverted to presently, we find specimens from various parts of the far West, as Utah, New Mexico, California, Oregon, and elsewhere, that appear to be absolutely identical with others from the typical habitat of the species, the Eastern and Southern States. Taking the number of the superior labials, their relation to the eye and the relative position of the lower postorbital as guides, perhaps the most reliable given, we find that in these particulars Eastern specimens vary very much. Baird and Girard give the number of upper labials as 7, but frequently there are 8 (more rarely 6), and when this is the case the position of the center of the orbit with relation to the 4th upper labial no longer holds good, while the lower postorbital is found over the 5th, or between it and the 6th, instead of, as given, over the 4th; or it may occasionally be found over the 3d, there being in this case but 6 upper labials, or one less instead of one additional. Very frequently the number of superior labials varies on different sides of the same individual, there being in some specimens 6 and 7 respectively, in others 7 and 8, the position of the orbit and orbital plates, both anteriorly and posteriorly, varying accordingly. Variations similar in character and degree are found in Western examples, both in those which have been considered and marked *B. constrictor* and in others labeled *reticulatum*. The characters upon which the distinctions appear for the most part to have been made are the relations the orbit and orbital plates bear to certain of the maxillary shields, but, as stated above, these our examinations have shown to be utterly unreliable, some individuals indeed bearing upon one side the characters of one form, those of another on the opposite. For the same reasons, the characters given as distinguishing *flaviventris* and *reticulatum* have no specific value *inter se*, being based upon individual variations. So far, then, as external individual characters go we are not able to find any firm basis upon which to separate Western and Eastern specimens.

Taking up the series now with reference to color alone, we find a quite marked and constant difference between Eastern and Western specimens. The dark coloration, pitchy-black above, greenish-black below, so characteristic of the snake as seen in the Eastern region, seems to be extremely rare or altogether wanting in the West, although, as nearly as we can judge from their very brief description, it was simply a black *B. constrictor* which was made the type of Baird and Girard's *B. fremontii*. If so, this specimen furnishes the only example we have of the occurrence of *constrictor* in its typical condition of color in the far West. It is more likely to have been an abnormally colored individual, as we have numerous specimens from California, the locality of the specimen in question, all of them corresponding in color to the usual Western type. This may be stated to be olive-brown above, beneath yellow. The precise shades vary much, the brown above having often greenish tinge, the yellow below fading to a greenish-white. Considerable variation also obtains in Eastern examples, and some, especially after long immersion in alcohol, become decidedly brownish or bluish. Young individuals are also usually lighter than adults, Baird and Girard's *B. forficata* being founded upon immature specimens varying thus. Comparing the Eastern and Western series together, the difference is a very striking one, amply sufficient, we think, to justify the retention of a Western variety. Baird and Girard's *B. flaviventris* being evidently based upon a typically colored Western specimen, this name must be retained as the earliest. It is a matter of interest to note the fact that the black *B. constrictor* extends as far to the west as Kansas, and that from Kansas, also, we have specimens of the light-colored, yellow-bellied Western form, about here apparently occurring the division between the two races.

The constancy shown in this species in the number of dorsal scales is noteworthy, 17 being the invariable number found in every specimen examined irrespective of the region where obtained. The variety *flaviventris* is very numerous in many portions of the West, and is there universally distributed, but is perhaps most numerous in the near vicinity of the water-courses. Only one of the many seen was, however, brought in.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9522	Honey Lake, California.....	1877	H. W. Henshaw	1

BASCANIUM FLAGELLIFORME PICEUM Cope.

†Bascanius flagelliforme piceum Cope, MS.
Bascanius flagelliforme subsp. *piceum* Cope, Cat. Bat. and Rept. N. A. 1875, p. 40.

A specimen consisting of the head and part of the body collected in Arizona has been doubtfully referred to this form, of which no description has yet appeared. So far as coloration goes, our specimen shows little difference from *B. testaceum*.

BASCANIUM TENIATUM LATERALE (Hallow.) Cope.

Bascanius tenuiatum Hallow., subspecies *laterale* Hallow., Cope. Check-List N. A. Rep. and Batrach. 1875, 40.—Yarrow, vol. v, Zoology, U. S., Geog. Survs. W. 100th M. 1875, 543.

This beautiful and characteristic serpent is quite numerous in Southern California. Peculiarities of color seem tolerably constant in this variety.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8595	Fort Tejon, Cal.....	1875	H. W. Henshaw .....	.....
8597	Santa Barbara, Cal	1875	....do .....	.....

BASCANIUM TENIATUM TENIATUM (Hall.) Cope.

Leptophis tenuiata Hallow., Proc. Acad. Nat. Sci. Phila. vi, 1852, 181.

Leptophis tenuiatus Hallow., Sitgreaves's Exp. Zuñi and Col. Riv. 1853, 133-146.

Masticophis tenuiatus Baird & Girard, Cat. N. A. Rep. pt. 1, Serp., 1853, 103.—Bd., P. R. R. Rep. x, 1859, 20, pl. ii; *id.*, P. R. R. Rep. 1859, x, p. ——Coop. & Suckl., Nat. Hist. Wash. Terr. 1860, 302.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 305.

Drymobius tenuiatus Cope, Proc. Acad. Nat. Sci. Phila. 1860, 561.

Masticophis schottii Baird & Girard, Cat. N. A. Rept. pt. 1, Serp., 1860, 163.—Bd., U. S. and Mex. Bound. Surv. ii, 1859, 20. (*Leptophis lateralis* Hallow., Proc. Acad. Nat. Sci. Phila. 1853, 237, and *Masticophis ornatus* Baird & Girard, Cat. N. A. Serp., should probably be added to this list as a synonym.)

Found to be rather common in New Mexico, Nevada, and California. Coloration not so constant as in the preceding form. The *Masticophis schottii* Baird & Girard belongs here, being based upon a specimen found in Texas.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9498	Walker's Basin, Cal	1875	H. W. Henshaw	1
9520	Carson City, Nev.....	1877	....do	1

EUTAENIA.

EUTAENIA HAMMONDII Kennicott.

Eutania hammondii Kennicott, Proc. Acad. Nat. Sci. Phila. 1860, 332.—Cope. Check-List N. A. Batr. and Rept. 1875, 41.

We cannot consider the species of this genus as settled as yet upon any permanent basis, and, notwithstanding the large number of so-called species and subspecies at present admitted, the difficulties in the way of the identification of any large number of individuals, even from the same locality, are often very great. Individual variation seems to be carried to extreme limits in this group, and, as a result, it appears to be almost impossible to fix upon any set of characters which are sufficiently stable to permit specific limits to be trenchantly defined. It is possible, however, by means of an artificial key, such as the one according to Professor Cope, in Vol. V, Zoology, of this expedition, to relegate the majority of specimens to one or the other of the recognized forms, although if the results obtained by a strict application of the key be accepted, there arises much confusion as regards the geographical areas occupied by a number of the forms, there apparently being, in the light of its determinations, no systematic law governing their distribution.

But for the present we can do no better than accept the key provisionally as the best exponent of the genus yet given us, leaving to the future any attempt to better it. The determinations of the species of this genus mentioned in the present report have been made in accordance with it.

The above species is one characterized by having the lateral line on the 2d and 3d rows of scales, 21 rows of scales, and 8 superior labials. It belongs in the same section as *E. marciana*, *vagrans*, *angustirostris*, and resembles most nearly the latter, from which it appears to be distinguishable. We find the character "dorsal stripe weak or wanting" an unstable one, as some individuals, unquestionably referable here, have it well

marked. The various species of *Eutaenia* are to some extent at least fish-eaters, and we have always found them most abundant about such small pools and streams as harbored minnows and the small fry of larger species. We once found a *Eutaenia* at Eagle Lake in the act of swallowing a good-sized minnow that he had just seized.

This species is found tolerably abundant in various portions of the Southwest.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8586	Southern California	1875	H. W. Henshaw	2
8604	Mojave Desert, California	1875	Dr. Loew	1
9525	Eagle Lake, California	1877	H. W. Henshaw	1

EUTAENIA MARCIANA Baird & Girard.

Eutaenia marciana Baird & Girard, Cat. N. A. Rept. pt. 1. Serp., 1853, 36; *id.*, Marcy's Exp. Red River, La., 1823, 221.—*Bd.*, U. S. and Mex. Bound. Surv. ii. Reptiles, 1855, 17.—*Bd.*, P. R. R. Rep. Whipp, Rounte, vol. x, 1859, 41.—Cope, Check-List N. A. Rept. and Batrach. 1875, 41.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th Meridian, 1875, 555.

Two specimens in the collection from Mojave Desert we refer to this species. They compare well with the characters given. This form resembles *hammondi* quite closely, but differs in the possession of distinct lateral spots. Our specimens possess no light dorsal lines, a character of much variability and of little diagnostic importance so far at least as this form is concerned.

Comparatively rare in California, except in the southern portion.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8578	Los Angeles, Cal.	1876	William Somers	1
8584	Mojave Desert, Cal.	1875	Dr. O. Loew	1

EUTAENIA ELEGANS Baird & Girard.

Eutania elegans Bd. & Gd., Cat. of N. A. Rept. 1853, p. 34.—*Bd.*, P. R. R. Rep. vol. x, Will. Rounte, 1857, 10.—Cope, Check-List N. A. Bat. and Rept. 1875, p. 41.
Tropidonotus trivittatus Hallow., Proc. Acad. Nat. Sci. 1853, 237; *id.*, P. R. R. Rep. vol. x, 1859, Will. Rounte, 13.

This species resemble somewhat *E. proxima*. The dorsal band is ochraceous yellowish-white, the lateral stripes greenish-white. According to Baird and Girard, the number of dorsal scales may vary from 19 to 21. This is illustrated in our specimens, in two of which there are 21 rows, in another but 19.

Quite numerous in Southern California and on the eastern slope between California and Nevada.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8579	Lake Tahoe, Nevada	1876	H. W. Henshaw	1
8587	Southern California	1875	do	1
8580	do	1875	do	1
9565	Eastern California	1877	do	1

EUTAENIA SIRTALIS PARIETALIS (Say) Cope.

a. SIRTALIS.

Coluber sirtalis Linn., Syst. Nat. i, 1766, 383.—Gm., Linn. Syst. Nat. ed. xiii. i, iii, 1788, 1107.—Latrelle, Hist. Nat. Rept. t. iv, 1825, 69.—Harl., Journ. Acad. Nat. Sci. Phila. v, 1827, 352.—Shaw, Gen. Zool. vol. iii, pt. ii, 535.—Daudin, Hist. Nat. des Rept. t. vii, 146.—Storer, Rept. Mass. 1839, 221.

Natrix sirtalis Merrem, Syst. des Amphib. 1820, 132.

Tropidonotus sirtalis Holbrook, N. A. Herp. iv, 1842, 41, pl. xi.

Coluber bipunctatus Latrelle, Hist. Nat. Rept. t. iv, 1825, pl. xxx, fig. 2.

Tropidonotus bipunctatus Schlegl., Ess. Phys. Serpt. 1837, 320.—Dum. et Bib., Erp. Gén. 1854, 582.

Tropidonotus taenia DeKay, N. J. Fauna Rept. 1842, 43, pl. 13, fig. 27.

b. PARIETALIS.

Coluber parietalis Say, Long's Exp. Rocky Mts. i, 1823, 186.—Harlin., Journ. Phila. Acad. Nat. Sci. v, 1827, 349.

Eutaenia parietalis Bd. & Gd., Cat. N. A. Rept. 1853, 28.

Eutaenia sirtalis subsp. *parietalis* Cope, Check-List N. A. Batr. and Rept. 1875, 41.

Eutaenia sirtalis parietalis Coues & Yarrow, Bull. U. S. Geol. Surv. Terr. 1878, 276.

Eutaenia ornata Bd. & Gd., U. S. and Mex. Bound. Surv. ii, pt. ii, 1859, Reptiles, 16, pl. 9.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 305, 306.—Cope, Check-List N. A. Batr. and Rept. 1875, 41.—Coues, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 613.

Specimens of this snake, five in number, are all from California and Nevada, and answer well to the description of the species. It is worth noting that several of these specimens were found with *E. elegans* in the same hole under the roots of a dead stump. This would appear to indicate a rather closer companionship than usually obtains between reptiles of different species.

Along the shores of the large island in Pyramid Lake vast numbers of *Eutaenia* are found, comprising this and, in all probability, several other recognized varieties. During the heated part of the day, the mossy tracts in the tepid, shallow water of the little inlets were thronged with them, as they swam in gentle undulations over the smooth surface or idly basked on the heated rocks along shore. In no other locality have we ever seen them in such numbers. When disturbed, they swam boldly out into open water or sought the bottom and hid themselves under the rocks. Though not in the true sense of the word "water-snakes," the various *Eutaenia* are all thus quite aquatic in their habits, and in fact it has been our experience to rarely find them except in close proximity to river, pool, or marsh.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8585	Lake Tahoe, Nevada	1876	H. W. Henshaw	2
8588	.....do.....	1876	.....do.....	11
9564	Eastern California.....	1877	.....do.....	.....

BOIDÆ.

CHARINA.

CHARINA PLUMBEA (Bd. & Gd.) Cope.

Wenona plumbea Bd. & Gd., Cat. N. A. Rept. 1853, 139.

Charina plumbea Cope, Check-List N. A. Batr. and Rept. 1875, 43.

Wenona isabella Bd. & Gd., Cat. N. A. Rept. 1853, 140.

The single specimen in the collection is of interest as extending to a certainty the range of this West-coast species across the mountains to the eastern border of California. The habitat of this snake has been doubtfully given by Professor Cope as including Nevada, but upon what authority we do not know. That such is the case seems now extremely probable, as our specimen was procured but a few miles distant from that State.

This specimen is referable to the form described by Baird and Girard as the *Wenona isabella*. It has two pairs of frontals only, instead of three, as given for *plumbea*, but a slight tendency to the bifurcation of the anterior pairs shows the slight reliance attaching to this as a character. Certain other slight variations in the arrangement of the head and maxillary scales partake of the nature of individual variation. The reduction of this nominal species to a synonym of *plumbea* as per Cope's *op cit.* is, we believe, perfectly justifiable.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9563	Eagle Lake, California	1877	H. W. Henshaw	1

SAURIA.

PLEURODONTA.

LEPTOGLOSSA.

SCINCIDÆ.

EUMECES.

EUMECES SKILTONIANUS Bd. & Girard.

Plestiodon skiltonianus Bd. & Gd., Stansbury's Rep. Grt. Salt Lake, 1852, 349, pl. iv, figs. 4-6; *id.*, Proc. Acad. Nat. Sci. Phila. vi, 1852, 69.—Bd., P. R. R. Rep. vol. x, 1859, Rep. 18; *id.*, Will. and Abbott's Route, p. 9.
Eumeces quadrilineatus Hallow., Proc. Acad. Nat. Sci. Phila. vii, 1854, 94; *id.*, P. R. R. Rep. vol. x, Williamson's Route, 1859, 10.
Eumeces skiltonianus Cope, Check-List N. A. Batr. and Rept. 1875, 45.

Two specimens of this species are in the collection from Southern California, probably from near Los Angeles.

List of specimens.

No.	Location.	Date.	Collector.	No. of specs.
8627	Southern California	1875	H. W. Henshaw	2

TEIDÆ.

CNEMIDOPHORUS.

CNEMIDOPHORUS GRAHAMII Bd. & Gd.

Cnemidophorus grahamii Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 128.—Bd., U. S. Mex. Bound. Surv. ii, 1859, Rept. 10, pl. 32, figs. 1-6.—Cope, Check-List N. A. Batr. and Rept. 1875, 45.—Cones, vol. v, Zool., U. S. Geog. Surv. W. 100th M. 1875, 603.

A single specimen only of this species has been collected by the expedition; this in the neighborhood of Los Angeles, and we are of the opinion that it is somewhat rare here. The species has been taken at Fort Tejon.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8634	Los Angeles, California	1875	William Somers	2

CNEMIDOPHORUS SEX-LINEATUS (Linn.).

Lacerta sex-lineata Linn., Syst. Nat. t. i, 364.—Gmelin, Syst. Nat. Linn. t. iii, 1074.—Harlan, Med. and Phys. Res. 144.

Six-lined lizard, Shaw, Gen. Zool. vol. iii, pt. i, 240.

Ameiva sex-lineata Holbrook, N. A. Herp. ii, 1842, 109.—DeKay, Zool. N. York, 1842, 30.

Cnemidophorus sex-lineatus Dum. & Bib., Hist. Nat. des Rept. t. v, 131.—Cope, Check-List N. A. Batr. and Rept. 1875, 45.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 557.

Cnemidophorus gularis Bd. & Gd., Proc. Acad. Nat. Sci. Phila. vi, 1852, 128.—Bd. & Gd., Marcy's Rep. Exp. Exped. Red Riv. 1852, 227, pl. x, figs. 1-4.—Bd., U. S. and Mex. Bound. Surv. ii, pt. ii, 1859, Reptiles, 11, pl. 34, figs. 1-6; *id.*, P. R. R. Rep. x, 1859, Whipple's Route, Reptiles, 38.

Cnemidophorus sexlineatus var. *gularis* Cope, Proc. Acad. Nat. Sci. Phila. 1866, 303.

Cnemidophorus sexlineatus gularis Cones, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 602.

Cnemidophorus guttatus Hallow., Proc. Acad. Nat. Sci. Phila. 1854, 192; *id.*, P. R. R. Rep. x, 1859, 23.

This is a species of widespread distribution, being found in the Sonoran and Austro-Riparian regions and extending to the east coast. There seems to be but little difference between specimens from eastern and western localities. The western are perhaps a trifle lighter in color. In one, No. 8761, from Arizona, the dark bands between the light are maculated with light spots, a peculiarity well shown in the young, but seldom seen in adults.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8630	Southern California	1875	J. Hasson	1
8631	Los Angeles, California	1875	W. Somers	1

CNEMIDOPHORUS TESSELLATUS TIGRIS (Bd. & Gd.).

a. TESSELLATUS.

Ameiva tessellata Say, Long's Exp. Rocky Mts. ii, 1823, 50.

Cnemidophorus tessellatus Bd., P. R. R. Rep. x, Gunnison's Rounte, 1857, 18.

b. TIGRIS.

Cnemidophorus tigris Bd. & Girard, Proc. Acad. Nat. Sci. Phila. 1852, 69.; *id.*, Stansb. Rep. Exp. Great Salt Lake, 1853, 338.—Bd., U. S. and Mex. Bound. Surv. ii, pt. ii, 1859. Reptiles, 10, pl. 33.

? *Cnemidophorus mariaoratus* Bd. & Gir., Proc. Acad. Nat. Sci. Phila. 1852, 128.

? *Cnemidophorus undulatus* Hallow, Proc. Acad. Nat. Sci. Phila. 1854, 94; *id.*, P. R. R. Rep. x, Williamson's Route, Reptiles, 8.

Cnemidophorus tessellatus subsp. *tigris* Cope, Check-List N. A. Batr. and Rept. 1875, 46.

Cnemidophorus tessellatus tigris Cones, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 604.

It is by no means improbable that the *Ameiva tessellata* of Say was based upon an accidental color-variety, and that *tigris* represents the normally colored form. In this case the two should, of course, be united. With no specimen, however, of *tessellatus* before us for comparison, we feel constrained to follow Cope in recognizing the two as distinct forms. Baird, in vol. x, P. R. R. Rep., Beckwith's Rounte, describes a lizard as being doubtfully the *A. tessellata* of Say, this, so far as we know, being the only specimen which has been referred to that form since Say's time.

Specimens of *tigris* in the Smithsonian collection show much variation in the arrangement of the spots and bands, their number, &c. In some individuals these approach the *tessellatus* type, as described; in others they are more nearly like the typical *tigris*. Some of the latter exhibit four or five well-marked light dorsal bands with dark interspaces; while in others the lines are obliterated, the tendency being toward wavy transverse bands of black and yellow, which are more or less broken up into irregularly shaped spots.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8633	Fort Tejon, California	1875	H. W. Henshaw	1

DIPLOGLOSSA.

GERRHONOTIDÆ.

GERRHONOTUS.

GERRHONOTUS SCINCICAUDUS Skilton.

Tropidolepis scincicaudus Skilton, Am. Journ. Sci. vii, 1849, 202, figs. 1-3.

Elgaria scincicauda Bd. & Gd., Stans. Rep. Salt Lake, 1842, p. 348, pl. iv, figs. 1-3.—Gd., Herp. U. S. Expl. Exp. 1858, 210.

Gerrhonotus scincicaudus Cope, Check-List N. A. Bat. and Rept. 1875, p. 47.

This species was found extremely numerous in the vicinity of Santa Barbara, as also upon the island of Santa Crnz. The differences between several of the admitted species of this genus, as at present defined, are so slight that it appears probable to us

that the number will have to be reduced. This species is very pugnacious and will bite fiercely if handled.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8622	Santa Barbara, Cal	1875	Dr. H. C. Yarrow	3
8624	.....do.....	1875	.....do.....	2
8625	.....do.....	1875	.....do.....	4
8626	Santa Cruz Island, Cal	1875	H. W. Henshaw	2
8623	Los Angeles, Cal	1875	L. Brown .....	.....

IGUANIA.

IGUANIDÆ.

HOLBROOKIA.

HOLBROOKIA MACULATA Girard.

Holbrookia maculata Girard, Proc. Am. Assoc. iv, 1850, 51, 201; *id.*, Marcy's Rep. Red Riv. 1852, 223; *id.*, Stans. Rep. Great Salt Lake, 1853, 342.—*Bd.*, U. S. and Mex. Bound. Surv. ii, Rept. 1859, 8; *id.*, P. R. R. Rep. x, 1859, 18, 38; *id.*, *ib.* x, 1859, Whipple's Route, Rept. 38.—Hayd., Trans. Am. Philos. Soc. xii, 1862, 177.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 313.—Coues, vol. v. Zool., U. S. Geog. Surv. W. 100th Meridian, 1875, 601.

Holbrookia affinis Bd. & Gd., Proc. Acad. Nat. Sci. Phila. vi, 1852, 125.—*Bd.*, U. S. and Mex. Bound. Surv. ii, pt. ii, Rept. 8.

Holbrookia maculata subspecies *maculata* Girard—Cope, Check-List N. A. Batrach. and Rep. 1875, 47.—Yarrow, vol. v, Zool., U. S. Geog. Surv. W. 100th Meridian, 1875, 563.

A beautiful specimen from Fort Tejon, Cal., differs in no respect from the typical form. Apparently not so common as in the interior.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9283	Fort Tejon, Cal	1875	H. W. Henshaw .....	.....

CALLISAURUS.

CALLISAURUS DRACONTOIDES VENTRALIS (Hallow.) Cope.

Callisaurus draconoides Blainv., Nouv. Ann. des Mus. p. 26.

Homalosaurus ventralis Hallow., Proc. Acad. Nat. Sci. Phila. vi, 1852, 179; *id.*, Sitgreaves's Exp. Zuñi and Col. Riv. 1854, 117, pl. 6.

Callisaurus ventralis Bd., U. S. and Mex. Bound. Surv. ii, pt. ii, 1859, Reptiles, 8.

Callisaurus draconoides subspecies *ventralis* Cope, Check-List N. A. Bat. and Rept. 1875, 47.

Callisaurus draconoides ventralis Coues, vol. v, Zool., U. S. Geog. Surv. W. 100th Meridian, 1875, 600.

This species resembles, in certain points, both *Crotaphytus* and *Holbrookia*, but is so characteristically distinct as to be readily recognizable. Coloration of our specimen from the Mojave Desert seems to be normal. An additional and constant color-mark not noted in the original description is a broad blackish stripe which passes from the posterior and inner border of the knee to the body, thence down the tail for about an inch, where it gradually fades away.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8638	Mojave Desert, Cal	1875	Dr. O. Loew	1

CROTAPHYTUS.

CROTAPHYTUS COLLARIS (Say) Holbrook.

Agama collaris Say, Long's Exp. Rocky Mts. ii, 1823, 232.—Harlan, Med. and Phys. Res. 1835, 142.
Crotaphytus collaris Holb., N. A. Herp. ii, 1842, 79, pl. 10.—Bd. & Gir., Marcy's Rep. Exp. Red Riv. 1853, 222.—Bd., U. S. and Mex. Bound. Surv. ii, pt. ii, 1859, Reptiles, 6; *id.*, P. R. R. Rep. x, 1859, Gunnison's Route, Reptiles, 19, pl. 24, figs. 1a-e; *id.*, *ib.*, Whipple's Route, Reptiles, 38.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 302; *id.*, Check-List N. A. Batrach. and Rep. 1875, 47.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 565.—Coues, *ib.* 600.

This well-marked species is one of the most abundant and characteristic lizards of the Southwestern Territories.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8628	Fort Mojave, Ariz.	1875	W. Somers.	.....
8629	Santa Barbara, Cal.	1875	Dr. H. C. Yarrow.	1
9549	Mojave Desert, Cal.	1875	Dr. O. Loew.	1

CROTAPHYTUS WISLIZENII Baird & Girard.

Crotaphytus wislizenii Baird & Girard, Proc. Acad. Nat. Sci. Phila. 1852, 69; *id.*, Stans. Rep. Exp. Grt. Salt Lake, 1852, 340.—Bd., U. S. and Mex. Bound. Surv. ii, 1859, Reptiles, 7; *id.*, P. R. R. Rep. x, 1859, Gunnison's Route, Reptiles, 17; *id.*, P. R. R. Rep. x, 1859, Whipple's Route, Reptiles, 37.—Coop. & Suckl., Nat. Hist. Wash. Ter. 1860, 294.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 303; *id.*, Check-List N. A. Batrach. and Rep. 1875, 48.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 566.—Coues, *ib.* 599.

Crotaphytus (Gambelia) wislizenii Bd., U. S. and Mex. Bound. Surv. *loc. cit.* in text.

Crotaphytus gambelii Bd. & Gir., Proc. Acad. Nat. Sci. Phila. 1852, 207; *id.*, Sitgreaves's Exp. Zuñi and Col. Riv. 1853, 115, pl. 5.

Crotaphytus fasciatus Hallowell, Proc. Acad. Nat. Sci. Phila. 1852, 207.

Habitat more northerly than the preceding. This species is extremely abundant on the sandy sage-brush desert in the region of Pyramid Lake, Nev., and in a day's ride scores may be seen along the road. They are extremely quick in movements, and when startled speed over the sand with marvelous celerity. They may be readily secured by the use of a long pliant switch or whip. The specimens from this locality all agree in presenting an unusually dark phase of coloration, the spots on the back being larger and blacker than in any others we have seen. This may be due in part to the loss of color in older alcoholic specimens.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8632	Southern California	1875	J. A. Hasson.	.....
9516	Pyramid Lake, Nev.	1877	H. W. Henshaw.	1

DIPSOSAURUS.

DIPSOSAURUS DORSALIS Bd. & Gd.

Crotaphytus dorsalis Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 126.

Dipsosaurus dorsalis Hallowell, Proc. Acad. Nat. Sci. Phila. 1854, 92.—Bd., U. S. and Mex. Bound. Surv. 1859, 8.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 310; *id.*, Check-List N. A. Bat. and Rept. 1875, 48.—Coues, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 599.

But a single individual of this southern species has been obtained by the expedition.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8635	Mojave Desert, Cal.	1876	Lieut. E. Bergland.	1

UTA.

UTA ORNATA Baird & Girard.

Uta ornata Baird & Girard, Proc. Acad. Nat. Sci. Phila. 1852, 126.—Bd., U. S. and Mex. Bound. Surv. pt. ii, 1859, Reptiles, 7.—Cope, Check-List N. A. Bat. and Rep. 1875, 48.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 568.—Coues, *ib.* 597.

Uta ornata var. *linearis* Bd., *l. c.* (Los nogales).

The relationship of Cope's *U. thalassina* and *U. graciosus* to the present species requires to be investigated, as the descriptions imply a rather close approach. Our specimens of the *U. ornata* from the Mojave Desert region show considerable differences in coloration from specimens collected in previous years in Utah, &c.; so marked, in fact, are they that at first we were inclined to consider them to be distinct. Baird's and Girard's description indicates a rather highly colored species—"reddish-brown above, with transverse elongated black patches all along the upper part of the body." This applies to the usual style found in Utah, and also to some from the Mojave Desert; others, however, from the last locality are of a clear ashy-gray color, variably marked with narrow transverse black bands.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8665	Southern California	1875	Dr. H. C. Yarrow	2
8666	Mojave Desert, Cal.	1875	Dr. O. Loew	2
8667	Fort Mojave, Ariz.	1875	William Somers	1
8668	Southern California	1875	J. A. Hasson	1

UTA STANSBURIANA Bd. & Gir.

Uta stansburiana Bd. & Gir., Proc. Acad. Nat. Sci. Phila. vi, 1852, 69; *id.*, Stans. Rep. Exp. Grt. Salt Lake, 345, pl. 5, figs. 4-6.—Bd., U. S. and Mex. Bound. Surv. pt. ii, 1859, Reptiles, 7; *id.*, P. R. R. Rep. Reptiles, x, 1859, Whipple's Route, 37.—Cope, Check-List 1875, 48.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 568.—Cones, *ib.* 596.

The color-variation in this species is very considerable indeed, being exceeded, if equaled, by no other of the family. The males are readily distinguishable from the depth of color, a bluish cast pervading the whole body. The chin and throat are strongly bluish, in decided contrast to the greenish-yellow of the under parts generally. A double row of black spots is usually found along the back.

The markings of the females are more irregular, the lighter tints prevailing. The sides are usually broken up by whitish maculations. Below, the yellow is paler and the chin of a lighter blue. Both sexes have a conspicuous bluish spot on the side just posterior to the fore leg. In the original description, we find no mention made of the carinate character of the scales of the dorsal region. All specimens, however, possess this as a constant feature. The carinae become best marked as the tail is approached, and gradually become obsolete close to the neck.

Young.—So entirely different in appearance are the young, when only from 2 to 3 inches long, that their identity would scarcely be suspected. Below they are greenish-yellow, the chin presenting no contrast of blue. Above, two series of continuous black spots inclose median lighter spaces. On either side of these, running from the eye down the body, is a conspicuous stripe of light yellow, 5 scales wide, below which is a series of ill-defined black spots. Anterior to and above the shoulder is a conspicuous roundish black spot. The spot on side of body back of fore leg is wanting. We find several specimens in the collection which well exhibit one extreme of color to which the species is subject; these, if only correlated with special locality, might properly be considered to represent a variety. This, however, is not the case. These are of a light-brown color, the upper surface being distinctly marbled with numerous light greenish-blue spots; the tail banded with same.

This species is very abundant throughout Southern California, Arizona, and Nevada.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8614	Santa Cruz Island, Cal.	1875	H. W. Henshaw	1
8615	Virginia City, Nev.	1876	William Somers	1
8616	Santa Barbara, Cal.	1875	H. W. Henshaw	10
8617	do	1875	do	5
8619	Santa Cruz Island, Cal.	1875	do	2
8620	Southern California	1875	J. A. Hasson	3
8621	Mojave Desert, Cal.	1875	Dr. O. Loew	3
8639	Southern California	1875	H. W. Henshaw	1

SCELOPORUS.

SCELOPORUS POINSETTII Bd. & Gd.

Sceloporus poinsetti Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 126.—Bd., U. S. and Mex. Bound. Surv. pt. ii, 1859, Rept. 5, pl. 29, figs. 1-3.—Cope, Check-List N. A. Batrach. and Rept. 1875, 48.—Yarrow, vol. v, Zool., U. S. Geog. Exp. W. 100th M. 1875, 573.—Coues, *ib.* p. 595.

This species was found in Southern Arizona by the expedition, where it is by no means rare. The specimen taken was mislaid, and no mention was made of it in the previous report; hence we introduce it here.

In comparing specimens of this well-marked form from Texas, the original locality of the species, with others collected in Arizona, we note a quite decided difference in the amount of carination of the scales of the back. Although in the original description the scales are given as smooth, we find in specimens from Texas, otherwise quite typical, a faint keeling, which in most Arizona specimens is seen to be quite pronounced.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8610	Santa Rita Mountains, Arizona.....	1874	H. W. Henshaw.....	1

SCELOPORUS CLARKII Bd. & Gd.

Sceloporus clarkii Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 127.—Bd., U. S. and Mex. Bound. Surv. pt. ii, 1859, Rept. 5.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 310; *id.*, Check-List, 1875, 49.—Coues, vol. v, Zool., U. S. Geog. Surv. W. 100th M. 1875, 594.

Sceloporus clarkii subsp. *clarkii* Yarrow, vol. v, Zool., U. S. Geog. Surv. W. 100th M. 1875, 575.

Sceloporus magister Hallow., Proc. Acad. Nat. Sci. Phila. 1854, 93.

A single specimen obtained in Nevada, where it appears to be a not very common lizard. The relationship between this form and the *spinulosus* of Wiegmann is a close one, and as a result of future investigation the two may require to be united.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9518	Nevada	1877	H. W. Henshaw.....	1
8674	Southern California	1876	Lieut. E. Bergland ..	1
8672	Mojave Desert	1876	Dr. O. Loew	1
8663	Fort Craig, New Mexico	1874	Dr. Bougher	1

SCELOPORUS UNDULATUS THAYERI (Bd. & Gd.) Cope.

a. UNDULATUS.

Lacerata undulata Daudin, Hist. Nat. des Rept. iii, 384.

Stellio undulatus Latreille, Hist. Rept. ii, 1802, 40.

Lacerata hyacinthina et fasciata Grec., Proc. Acad. Nat. Sci. Phila. i, 349.

Uronotus undulatus Merrem, Syst. des Amphib. 57.

Agama undulata Harlan, Med. and Phys. Res. 1853, 140.—Daudin, Hist. Nat. des Rept. t. iii, 384.

Tropidolepis undulatus Cuvier apud Griffith, ix, 126.—Cuvier, Règ. Anim. t. ii, p. 38.—Gray, in Griff. An. King. vol. x, 43.—Holbrook, N. A. Herp. iii, 51, pl. viii, ii, 73, pl. 9, 2d ed. 1842.—Dum. & Bib., Hist. Nat. des Rept. t. iv, 298.—DeKay, Zool. N. Y. 1842, 31.—Tenney, Man. Zool. 1866, 296.

Sceloporus undulatus Gravenhorst, Nov. Acta, xviii, 768.—Wiegmann, Isis. 1828, 369.—Bd., P. R. R. Rep. x, Whipple's Route, 1857, 37.—Gd., Herp. U. S. Expl. Exped. 1858, 379, pl. xix, figs. 15-21.

Sceloporus undulatus subsp. *undulatus* Cope, Check-List N. A. Batr. and Rept. 1875, 48.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 573.

b. THAYERI.

Sceloporus thayeri Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 127 (orig. descr.).—Bd., U. S. and Mex. Bound. Surv. 1859, 6.

Sceloporus undulatus subsp. *thayeri* Cope, Check-List N. A. Batr. and Rept. 1875, 49.

Sceloporus occidentalis Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 175.—Gd., Herp. U. S. Expl. Exped. 1858, 383.—Bd., P. R. R. Rep. x, Gunnison's Route, 1857, 17.—Bd., P. R. R. Rep. x, Abbott's Route, 1857, 9.—Cooper, Nat. Hist. Wash. Terr. 1859, 293.

Sceloporus frontalis Bd. & Gd., Proc. Acad. Nat. Sci. Phila. 1852, 175.—Gd., Herp. U. S. Expl. Exped. 1858, 38, pl. xix, figs. 1, 7.

Sceloporus longipes Bd., Proc. Acad. Nat. Sci. Phila. 1858, p.—Bd., P. R. R. Rep. x, Gunnison's Route, 1857, 17.

Prevailing over much of the Middle and Pacific regions is a lizard comparable in every respect, in fact, presenting no very apparent tangible characters separating it

from the *S. undulatus* of the Eastern United States. The form from Texas described by Baird and Girard as *S. thayeri* appears to apply here, and it was reduced by Cope in his check-list to a sub-species of *undulatus*. Accepting the name *thayeri* as applicable to the Western variety of *undulatus*, we identify as such a large snite of lizards collected by the expedition in various portions of California and Nevada. About the only real difference—and this is to be observed rather as an average than as characterizing every individual specimen—is one of color, California specimens being very brightly colored, the usual blue patches along the sides and under the chin occasionally spreading nearly the whole belly and throat. In such individuals, if the scales of the back be removed, a strong bluish cast will be found to tinge also the skin. It should be remarked that typical specimens of *S. undulatus* absolutely identical with more eastern specimens are found in Utah, Nevada, New Mexico, and Arizona.

In Vol. V, Zoology, of this expedition, Professor Cope described a new species of *Sceloporus* from Utah, which he called *smaragdinus*. As compared with what we term *thayeri*, this form appears to possess a longer, stouter body; the tail is broader at base and shorter. The scales of *thayeri* are perhaps proportionately larger. So far as the scale-formula of the head is concerned, we can find little or no difference, and are strongly inclined to the opinion that it will not prove to be distinct from *thayeri*.

List of specimens.

No.	Locality.	Date.	Collector.	No. of spec's.
8657	Mojave Desert	1875	Lieut. E. Bergland	1
8659	Mount Whitney, Cal.	1875	H. W. Henshaw	4
8658	Southern California	1875	do	2
8608	do	1875	do	12
8660	do	1875	do	4
8673	Los Angeles, Cal.	1875	W. Somers	2
8661	Lake Tahoe, Cal.	1876	H. W. Henshaw	1
8662	Santa Barbara, Cal.	1876	do	2
8608A	California	1876	do	1

SCELOPORUS CONSOSBRINUS Bd. & Gd.

Sceloporus consobrinus Bd. & Gd., Marcy's Exped. Red Riv. 1853, 224, pl. 10, figs. 5—12.—Bd., P. R. R. Rep. x, 1859, Whipple's Route, Reptiles, 37; *id.*, U. S. and Mex. Bound. Surv. pt. ii, Reptiles, 5.—Hayd., Trans. Am. Phil. Soc. xii, 1862, 303.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 303.—Cope, U. S. Geol. Surv. Montana, 1872, 468.—Allen, Proc. Bost. Soc. Nat. Hist. xvii, 1874, 69.—Cope, Check-List N. A. Batrach. and Rept. 1875, 49.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 574.—Coues, *ibid.* 594.—Coues & Yarrow, Bull. U. S. Geol. Surv. Terr. vol. 4, No. 1, 1878, 287.

An abundant species throughout the West and Southwest. This species varies much in coloration.

List of specimens.

No.	Locality.	Date.	Collector.	No. of spec's.
8606	Olancha Peak, Cal.	1875	H. W. Henshaw	3
8607	Southern California	1875	do	2
8609	Mojave Desert, Cal.	1875	Dr. O. Loew	5
8643	do	1875	do	1
8664	Virginia City, Nev.	1875	William Somers	1
8482	Apache, Ariz.		Dr. O. Loew	1
9548	Fort Wingate, N. Mex.	1874	H. W. Henshaw	1

PHRYNOSOMA.

PHRYNOSOMA PLATYRHINUM Girard.

Phrynosoma platyrhinus Girard, Stans. Rep. Exp. Grt. Salt Lake 1853, 361—363, pl. vii, figs. 1—5.—Cope, Proc. Acad. Nat. Sci. Phila. 1866, 302.
Doliosaurus platyrhinus Girard, Herp. U. S. Exp. Exped. 1858, 407.—Bd., P. R. R. Rep. x, 1859, Gunnison's Route, Reptiles, 18.
Phrynosoma platyrhinum Cope, Check-List N. A. Batrach. and Rept. 1875, 49.—Yarrow, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 577.—Coues, *ibid.* 594.

Great numbers of this species were noticed on the sandy, desert-like valleys between Reno and Pyramid Lake, Nevada. It was not seen again, although doubtless it occurs at intermediate points, until far to the northward a few were taken on a sandy, alka-

line desert near Warner Lake, Oregon. This is probably the extreme northern locality from which the species is recorded. After an examination of a great number of specimens we find the under surface of the body unicolor, save the chin, throat, and tail, which are spotted.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
9519	Pyramid Lake, Nev.	1877	H. W. Henshaw	6

PHRYNOSOMA MACCALLII Hallowell.

Anota McCalli Hallow., Sitgreaves's Exp. Zufi and Col. Riv. 1853, 127, pl. 10 (type of genus).—Hall., Proc. Acad. Nat. Sci. Phila. vi, 1852, 182.
Doliosaurus maccallii Gir., Herp. U. S. Expl. Exped. 1858, 408.—Bd. U. S. and Mex. Bound. Surv. ii, pt. ii, 1859, Reptiles, 9, pl. 28, figs. 4-6.
Phrynosoma maccallii Cope, Proc. Acad. Nat. Sci. Phila. 1866, 310; *id.*, Check-List 1875, 49.—Coues, vol. v, Zoology, U. S. Geog. Surv. W. 100th M. 1875, 593.

Notwithstanding the fact that a number of the species of this group described by the earlier authors have been thrown out or retained only as varieties, it seems probable that the number will require still further reduction, as certain ones of the accredited species run remarkably close to each other.

In external form the above is one of the most characteristic of the family, the long limbs and tail and attenuated body giving it a peculiar appearance. The absence of external auditory apertures caused Hallowell to separate it under the genus *Anota*. Strictly speaking, however, these are not entirely wanting, as is the case in the genus *Holbrookia*, but in most, perhaps all, specimens the ear is indicated by a slight depression in the skin, which is covered by very minute granular scales.

This species is very abundant in the Mojave Desert, and is the least highly colored of the group, as also one of the most constant in markings. Several specimens were taken near Virginia City, Nev., which indicates an extreme point in its northern dispersion.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8649	Mojave Desert	1875	Dr. O. Loew	2
8650	Virginia City, Nev.	1875	William Somers	3
8651	Mojave Desert	1875	Dr. O. Loew	1
9195	do	1875	do	1

PHRYNOSOMA CORONATUM Blainville.

Phrynosoma coronatum Blainv., in Nouv. An. Mus. d'Hist. Nat. iv, 1835, 285, pl. 25, figs. 1 a, b, c.—Dum. & Bibron, Herpt. Gén. iv, 1837, 318.—Holbrook, N. A. Herp. 2, 1842, p. 97, pl. 13.—Girard in Stans. Exp. Grt. Salt Lake, 1852, 360, pl. 8, figs. 7, 12.—Hallow., Sitgreaves's Rep. Zuni and Col. Riv. 1853, p. 122.—Cope, Check-List N. A. Batrach. and Rept. 1875, 59.
Phrynosoma blainvillii Gray in Beechey's Voy. to Pacif., Zoology, 1839, 96, pl. 29, fig. 1 (young); *id.*, Cat. Liz. Brit. Mus. 1845, p. 228.
Brachachosoma coronatum Fitz., Syst. Rep. i, 1843, p. 79.—Girard, Herp. U. S. Expl. Exp. 1858, p. 400.
Phrynosoma solis Gray, Brit. Mus. Cat. Lizards, 1845, p. 229.

Very numerous in many sections throughout Southern California, and one of the most beautiful and well marked of the group; is readily distinguishable, except from *blainvillei*, by the four rows of large sub-mental scales.

List of specimens.

No.	Locality.	Date.	Collector.	No. of specs.
8645	Mojave Desert, Cal.	1875	Dr. O. Loew	2
8646	Santa Barbara, Cal.	1875	Dr. H. C. Yarrow....	2
8647	Mojave Desert, Cal.	1875	Dr. O. Loew	1
8648	Santa Barbara, Cal.	1875	H. W. Henshaw	1

As of interest in this connection we may mention the *P. cornutum*, which has been taken in California. In this species the scales on the inferior surface of head are slightly keeled; the spotting on belly is very variable, sometimes present in immature specimens and almost wanting in fully adult ones. Femoral pores rarely well developed, sometimes very indistinct or wanting. A continuous band of at least three rows of large carinated scales passes across the breast from elbow to elbow. This latter is a character which appears to be absolutely constant and quite diagnostic of the species.

The *P. planiceps* of Hallowell, from Texas and the "southern Sonoran region," appears to present no characters that should distinguish it from *cornutum*, and we have no hesitancy in placing it as a synonym under the latter. Upon communicating our opinion to Professor Cope, he informs us that he recently has been led to the same conclusion by the examination of specimens of supposed *planiceps* from Texas, its original locality. Below is appended the synonymy.

Agama cornuta Harl., Journ. Acad. Nat. Sci. Phila. vol. 4, ii, 1825, pl. 20, vi, 1, 1829, 14; Med. and Phys. Res. 1835, 141, figs. 1-2.—Griff. in Cuv. Animal Kingd. 9, 1831, 216 (fig.).

Phrynosoma cornutum Girard, Stans. Rep. Exp. Great Salt Lake, 1852, 360, pl. viii, figs. 1-6.—Hallowell, Sitgreaves's Rep. Exp. Zuñi and Col. Riv. 1853, 119.—Bd., U. S. and Mex. Bound. Surv. pt. ii, Reptiles, 1859, 9; *id.*, P. R. R. Rep. x, 1859, 38.—Cope, Check-List N. A. Batrach. and Rept. 1873, 49.—Yarrow, vol. v, Zool., U. S. Geog. Surv. W. 100th Meridian, 1875, 579.

Phrynosoma cornuta Gray, Syn. Rept. in Griffith's Animal Kingd. vol. 9, 1831, 45; *id.*, Cat. Liz. British Mus. 1845, 229.—Holbr., N. A., Herp. ii, 1842, 87, pl. xi.

Taypaya cornuta Cuv., Rég. Animal, 2^e éd. vol. 2, 37.

Lacerta tapayazin Barton, Med. and Phys. Journ. vol. 3.

Phrynosoma harlanii Wieg., Herp. Mexico, pt. i, 54.—Duméril & Bibron, Erpét. Gén. vol. 4, 1837, 314.

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